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propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

receiving the message, via the message-passing communications network, by the communications manager of the second processor element;

comparing, by the communications manager of the second processor element, the global address with the plurality of predefined values for a match;

in the event of a match, computing a local address by the communications manager of the second processor element, and storing the results of the computation at the local address via the common bus to the local data memory.

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21. (amended) A parallel computer system having at least first and second processor elements, each processor element comprising a processor, a local program memory, a local data memory, a communications manager and an operating system, within each processor element the local program memory, local data memory, and communications manager all communicatively coupled by means of a common bus; the local data memories of the at least first and second processor elements not on a common bus; the communications managers of the at least first and second processor elements communicatively coupled by means of a message-passing communications network; the processor elements each executing an application; each communications manager further comprising a plurality of predefined values indicative of a plurality of global addresses in which the application of the processor element is interested;

for each communications manager, the communications manager comprising first means responsive to writing, by the processor of the processor element, by means of the common bus of the first processor element, a result of a computation into the communications manager of the first processor element, by adding a global address to the result of the computation, and by

for propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

for each communications manager, the communications manager comprising second means responsive to receiving a message, via the message-passing communications network, by the communications manager, for comparing the global address with the plurality of predefined values for a match, in the event of a match, for computing a local address, and storing the results of the computation at the local address via the common bus to the local data memory.

Add the following new claims.

26. A method of operating a parallel computer system having at least first and second processor elements, each processor element comprising a processor, a local program memory, a local data memory, a communications manager and an operating system, within each processor element the local program memory, local data memory, and communications manager all communicatively coupled by means of a common bus; the communications managers of the at least first and second processor elements communicatively coupled by means of a message-passing communications network; the processor elements each executing an application; each communications manager further comprising predefined values indicative of global addresses in which the application of the processor element is interested; the method comprising the steps of:

writing, by the processor of the first processor element, by means of the common bus of the first processor element, a result of a computation into the communications manager of the first processor element;

adding, by the communications manager, a global address to the result of the computation;

propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

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receiving the message, via the message-passing communications network, by the communications manager of the second processor element;

comparing, by the communications manager of the second processor element, the global address with the predefined values for a match;

in the event of a match, computing a local address by the communications manager of the second processor element, and storing the results of the computation at the local address via the common bus to the local data memory,

wherein the predefined values are further characterized as comprising an address window, each window comprising an initial address and an end address, a match comprising the global address falling between the initial address and the end address.

27. A method of operating a parallel computer system having at least first and second processor elements, each processor element comprising a processor, a local program memory, a local data memory, a communications manager and an operating system, within each processor element the local program memory, local data memory, and communications manager all communicatively coupled by means of a common bus; the communications managers of the at least first and second processor elements communicatively coupled by means of a message-passing communications network; the processor elements each executing an application; each communications manager further comprising predefined values indicative of global addresses in which the application of the processor element is interested; the method comprising the steps of:

writing, by the processor of the first processor element, by means of the common bus of the first processor element, a result of a computation into the communications manager of the first processor element;

adding, by the communications manager, a global address to the result of the computation;

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propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

receiving the message, via the message-passing communications network, by the communications manager of the second processor element;

comparing, by the communications manager of the second processor element, the global address with the predefined values for a match;

in the event of a match, computing a local address by the communications manager of the second processor element, and storing the results of the computation at the local address via the common bus to the local data memory,

wherein the propagating step comprises propagating the message to a number of processor elements, the number comprising less than all and more than one of the processor elements.

28. A parallel computer system having at least first and second processor elements, each processor element comprising a processor, a local program memory, a local data memory, a communications manager and an operating system, within each processor element the local program memory, local data memory, and communications manager all communicatively coupled by means of a common bus; the local data memories of the at least first and second processor elements not on a common bus; the communications managers of the at least first and second processor elements communicatively coupled by means of a message-passing communications network; the processor elements each executing an application; each communications manager further comprising predefined values indicative of global addresses in which the application of the processor element is interested;

for each communications manager, the communications manager comprising first means responsive to writing, by the processor of the processor element, by means of the common bus of

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the first processor element, a result of a computation into the communications manager of the first processor element, by adding a global address to the result of the computation, and by propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

for each communications manager, the communications manager comprising second means responsive to receiving a message, via the message-passing communications network, by the communications manager, for comparing the global address with the predefined values for a match, in the event of a match, for computing a local address, and storing the results of the computation at the local address via the common bus to the local data memory,

wherein the predefined values are further characterized as comprising an address window, each window comprising an initial address and an end address, a match comprising the global address falling between the initial address and the end address.

29. A parallel computer system having at least first and second processor elements, each processor element comprising a processor, a local program memory, a local data memory, a communications manager and an operating system, within each processor element the local program memory, local data memory, and communications manager all communicatively coupled by means of a common bus; the local data memories of the at least first and second processor elements not on a common bus; the communications managers of the at least first and second processor elements communicatively coupled by means of a message-passing communications network; the processor elements each executing an application; each communications manager further comprising predefined values indicative of global addresses in which the application of the processor element is interested;

for each communications manager, the communications manager comprising first means responsive to writing, by the processor of the processor element, by means of the common bus of the first processor element, a result of a computation into the communications manager of the first

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processor element, by adding a global address to the result of the computation, and by propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

for each communications manager, the communications manager comprising second means responsive to receiving a message, via the message-passing communications network, by the communications manager, for comparing the global address with the predefined values for a match, in the event of a match, for computing a local address, and storing the results of the computation at the local address via the common bus to the local data memory,

wherein the first means propagates the message to a number of processor elements, the number comprising less than all and more than one of the processor elements.

30. The method of claim 16 wherein the predefined values are further characterized as comprising at least two address windows, each window comprising an initial address and an end address, a match comprising the global address falling between the initial address and the end address of at least one of the at least two address windows.

31. The apparatus of claim 21 wherein the predefined values are further characterized as comprising at least two address windows, each window comprising an initial address and an end address, a match comprising the global address falling between the initial address and the end address of at least one of the at least two address windows..

32. A method of operating a parallel computer system having at least first, second, and third processor elements, each processor element comprising a processor, a local program memory, a local data memory, a communications manager and an operating system, within each processor element the local program memory, local data memory, and communications manager all communicatively coupled by means of a common bus; the communications managers of the at least first and second processor elements communicatively coupled by means of a message-

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passing communications network; the processor elements each executing an application; each communications manager further comprising predefined values indicative of global addresses in which the application of the processor element is interested; the method comprising the steps of:

writing, by the processor of the first processor element, by means of the common bus of the first processor element, a result of a computation into the communications manager of the first processor element;

adding, by the communications manager, a global address to the result of the computation;

propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

receiving the message, via the message-passing communications network, by the communications manager of the second processor element;

comparing, by the communications manager of the second processor element, the global address with the predefined values for a match;

achieving a match thereof;

computing a local address by the communications manager of the second processor element, and storing the results of the computation at the local address via the common bus to the local data memory,

receiving the same message, via the message-passing communications network, by the communications manager of the third processor element;

comparing, by the communications manager of the third processor element, the global address